

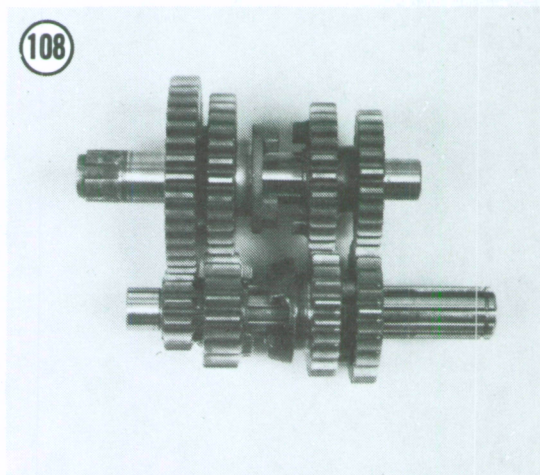
NOTE

After both transmission shafts have been assembled, mesh the 2 assemblies together in the correct position (**Figure 108**). Check that all gears meet correctly. This is your last check prior to installing the assemblies into the crankcase; make sure they are correctly assembled.

**4-SPEED TRANSMISSION AND
INTERNAL SHIFT MECHANISM
(90-125 CC)**

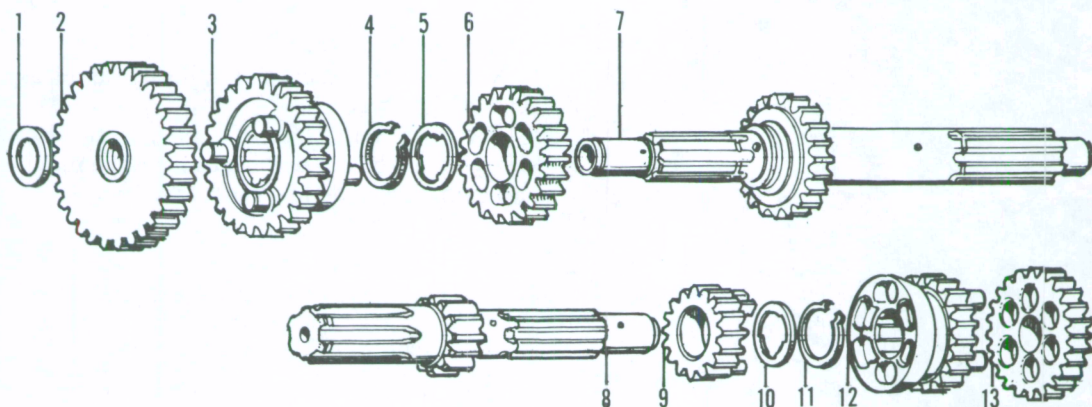
The 4-speed transmission shown in **Figure 109** is used on the following models:

- a. All ATC90.
- b. All ATC110.
- c. ATC125M.

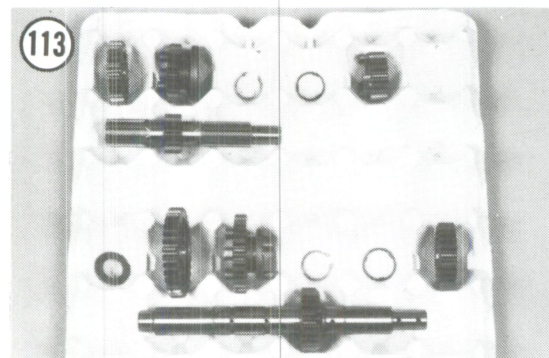
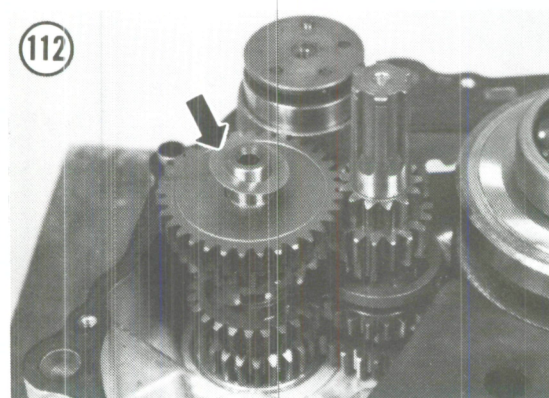
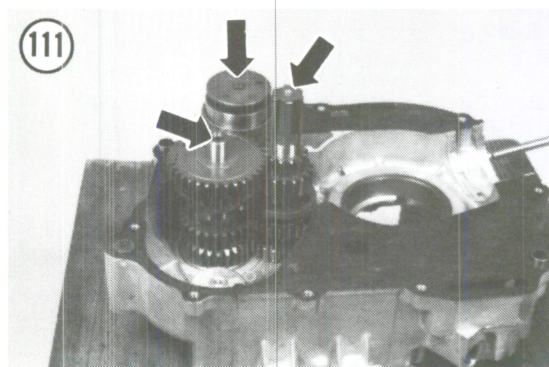
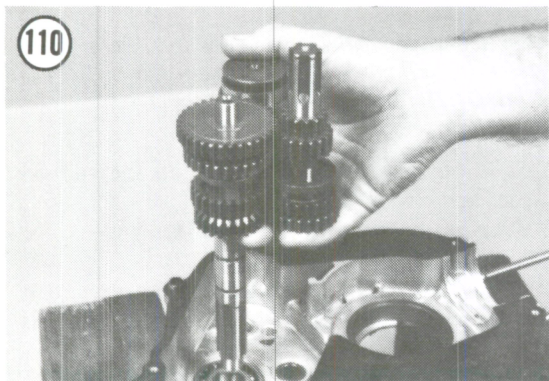


109

4-SPEED TRANSMISSION (90-125 CC)



1. Thrust washer
2. Countershaft 1st gear
3. Countershaft 2nd gear
4. Circlip
5. Splined washer
6. Countershaft 3rd gear
7. Countershaft/4th gear
8. Main shaft/1st gear
9. Main shaft 2nd gear
10. Splined washer
11. Circlip
12. Main shaft 3rd gear
13. Main shaft 4th gear



Removal/Installation

1. Remove the engine and split the crankcase as described in Chapter Four.
2. Pull the shift fork shaft assembly, main shaft assembly and the countershaft assembly up and out of the crankcase as an assembly.
3. Disassemble and inspect the shift forks and transmission assemblies as described in this chapter.
4. Coat all bearings and sliding surfaces of both transmission assemblies and the shift drum with assembly oil.
5. Install the 2 transmission assemblies and the shift drum assembly by meshing them together in their proper relationship to each other. Install them in the left-hand crankcase (Figure 110). After both assemblies are installed, tap on the end of both shafts and the shift drum assembly (Figure 111) with a plastic or rubber mallet to make sure they are completely seated.

NOTE

Figure 110 and Figure 111 are shown with the crankshaft assembly removed. It is not necessary to remove the assembly for this procedure.

6. Spin the transmission shafts and shift through the gears using the shift drum. Make sure you can shift into all gears. This is the time to find that something may be installed incorrectly—not after the crankcase is completely assembled.

NOTE

This procedure is best done with the aid of a helper as the assemblies are loose and won't spin very easily. Have the helper spin the transmission shaft while you turn the shift drum through all the gears.

7. Make sure that the thrust washer (Figure 112) is installed on the countershaft.
8. Assemble the crankcase as described in Chapter Four.

Main Shaft Disassembly/Inspection/Assembly

Refer to Figure 109 for this procedure.

NOTE

A helpful "tool" that should be used for transmission disassembly is a large egg flat (the type that restaurants get their eggs in). As you remove a part from the shaft set it in one of the depressions in the same position from which it was removed (Figure 113). This is an easy way to remember the correct relationship of all parts.

1. Clean the shaft as described under *Preliminary Transmission Inspection (All Models)* in this chapter.
2. Slide off the 4th gear and the 3rd gear.
3. Remove the circlip and slide off the splined washer and the 2nd gear.
4. Check each gear for excessive wear, burrs, pitting or chipped or missing teeth. Make sure the lugs (Figure 114) on the gears are in good condition.

NOTE

Defective gears should be replaced. It is a good idea to replace the mating gear on the countershaft even though it may not show as much wear or damage.

NOTE

The 1st gear is part of the shaft. If the gear is defective the shaft must be replaced.

5. Make sure that all gears slide smoothly on the main shaft splines.

NOTE

It is a good idea to replace the circlip every other time the transmission is disassembled to ensure proper gear alignment.

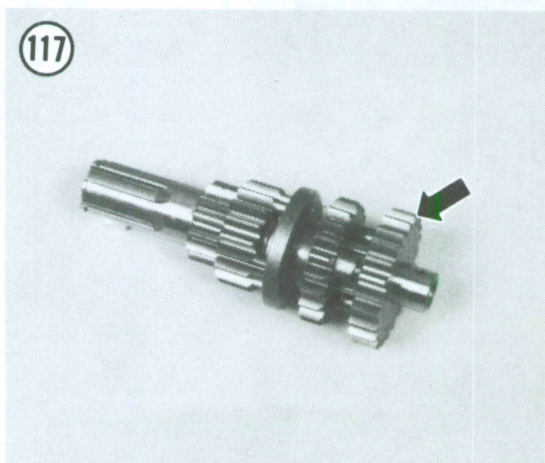
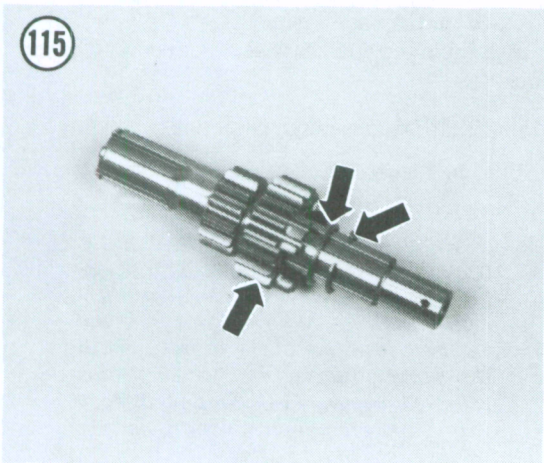
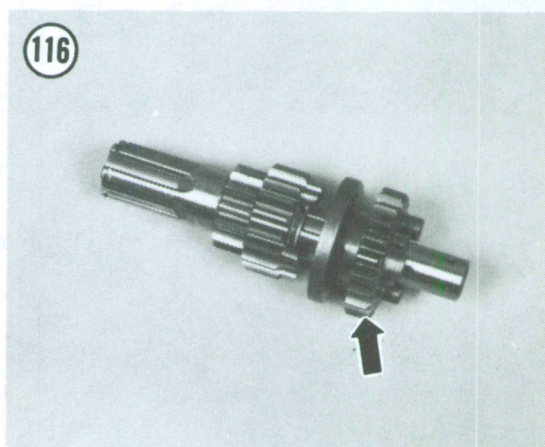
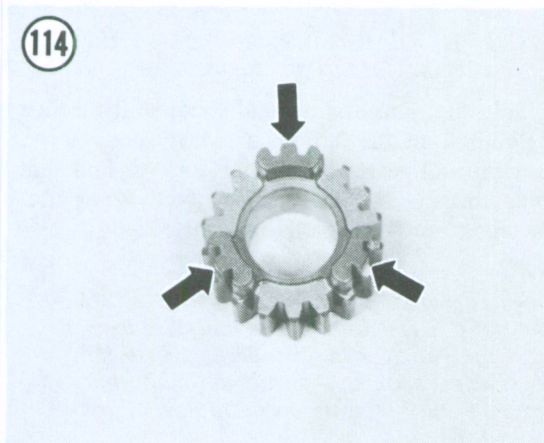
6. Slide on the 2nd gear and install the splined washer and circlip (Figure 115).
7. Slide on the 3rd gear (Figure 116).
8. Slide on the 4th gear (Figure 117).
9. Before installation, double-check the placement of all gears (Figure 118). Make sure the circlip is seated correctly in the main shaft grooves.

Countershaft Disassembly/Inspection/Assembly

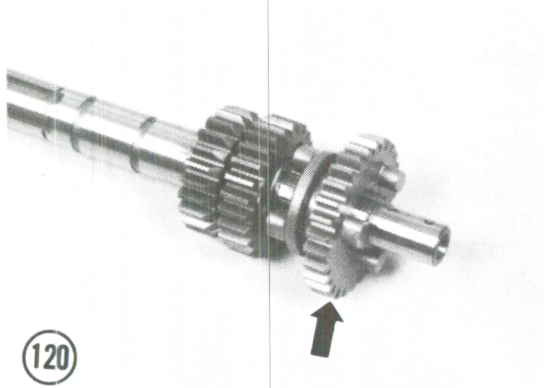
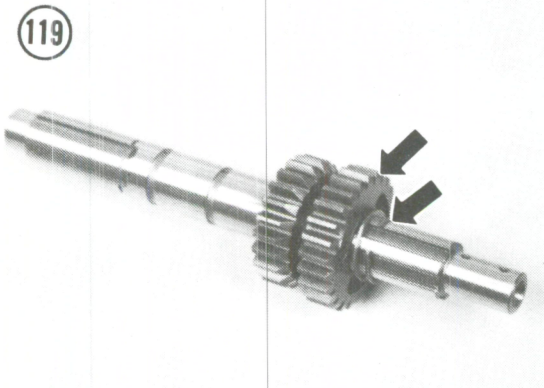
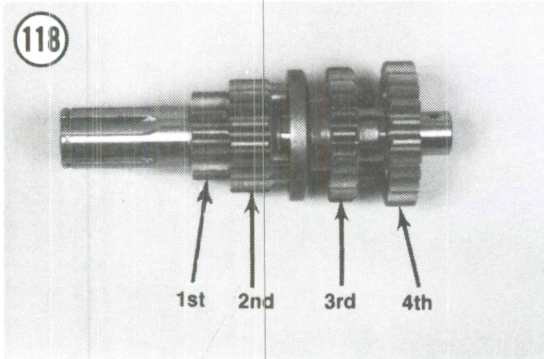
Refer to Figure 109 for this procedure.

NOTE

Use the same large egg flat (used on the main shaft disassembly) during the countershaft disassembly (Figure 113). This is an easy way to remember the correct relationship of all parts.



1. Clean the shaft as described under *Preliminary Transmission Inspection (All Models)* in this chapter.
2. Remove the thrust washer and slide off the 1st gear.
3. Slide off the 2nd gear.
4. Remove the circlip and slide off the splined washer and the 3rd gear.
5. Check each gear for excessive wear, burrs, pitting or chipped or missing teeth. Make sure the lugs on the gears are in good condition.



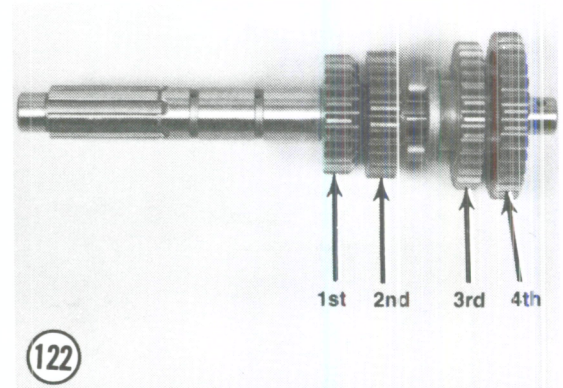
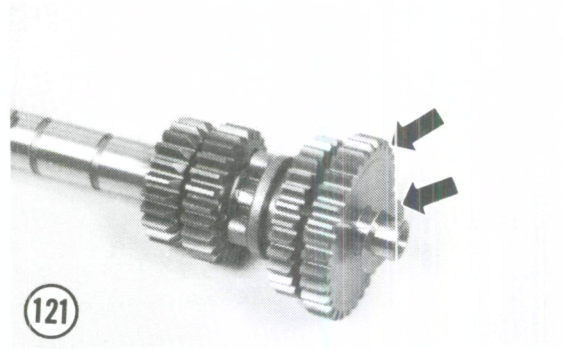
NOTE
Defective gears should be replaced. It is a good idea to replace the mating gear on the main shaft even though it may not show as much wear or damage.

NOTE
The 4th gear is part of the shaft. If the gear is defective the shaft must be replaced.

6. Make sure that all gears slide smoothly on the countershaft splines.

NOTE
It is a good idea to replace the circlip every other time the transmission is disassembled to ensure proper gear alignment.

7. Slide on the 3rd gear and install the circlip and splined washer (Figure 119).
8. Slide on the 2nd gear (Figure 120).
9. Slide on the 1st gear and the thrust washer (Figure 121).
10. Before installation, double-check the placement of all gears (Figure 122). Make sure the circlip is seated correctly in the countershaft groove.

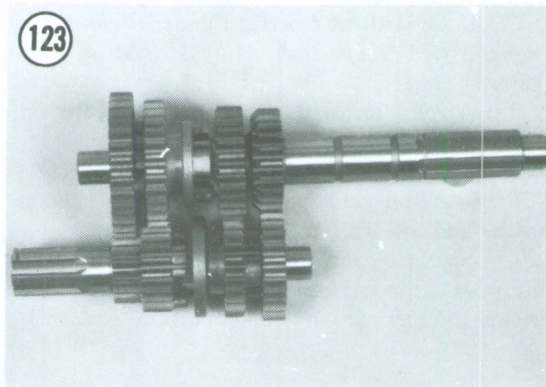


NOTE

After both transmission shafts have been assembled, mesh the 2 assemblies together in the correct position (**Figure 123**). Check that all gears meet correctly. This is your last check prior to installing the assemblies into the crankcase; make sure they are correctly assembled.

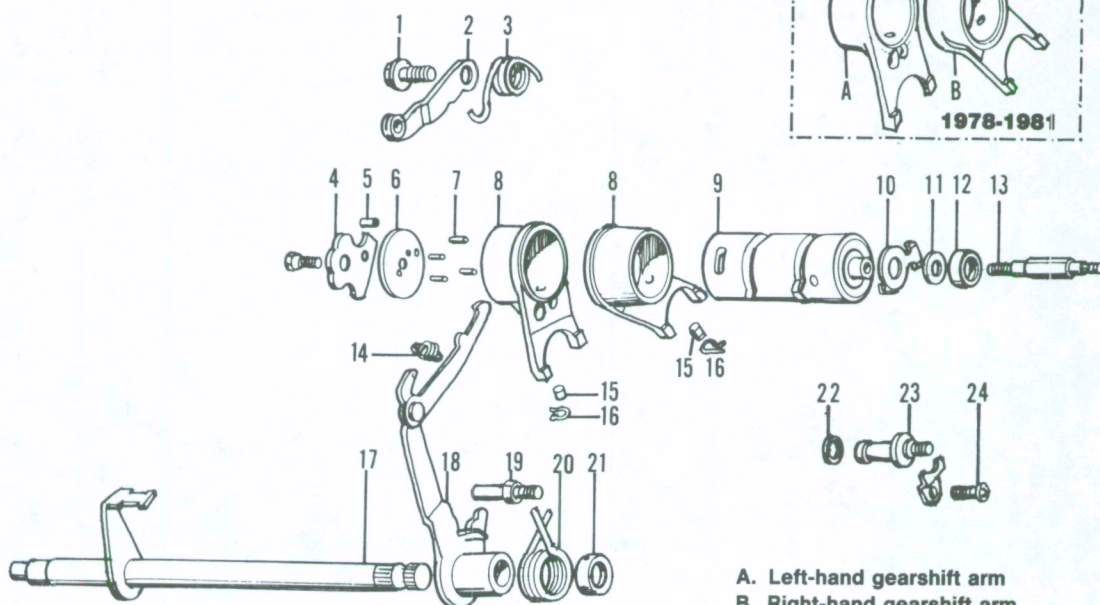
INTERNAL SHIFT MECHANISM (ALL MODELS)

Refer to **Figure 124** for 70 cc models or **Figure 125** for 90-125 cc models for this procedure.



124

GEARSHIFT MECHANISM (70 CC)



A. Left-hand gearshift arm
B. Right-hand gearshift arm

- | | |
|-------------------------------------|-----------------------------------|
| 1. Bolt | 13. Gear position indicator shaft |
| 2. Stopper pawl | 14. Spring |
| 3. Spring | 15. Guide pin |
| 4. Shift drum stopper plate | 16. Clip |
| 5. Pin | 17. Gearshift shaft |
| 6. Plate (1982-on) | 18. Gearshift arm |
| 7. Pin | 19. Stud |
| 8. Gearshift fork | 20. Return spring |
| 9. Gearshift drum | 21. Collar |
| 10. Neutral indicator contact plate | 22. O-ring seal |
| 11. Washer | 23. Neutral indicator |
| 12. Oil seal | 24. Screw |

Copyright of Honda ATC, TRX, FOURTRX 70-125, 1970-1987 is the property of Penton Media, Inc. ("Clymer") and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.